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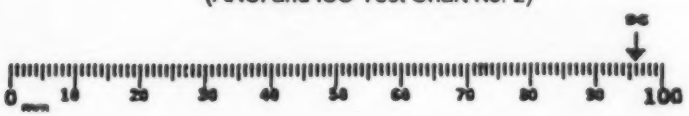

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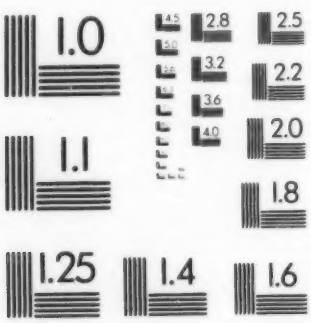

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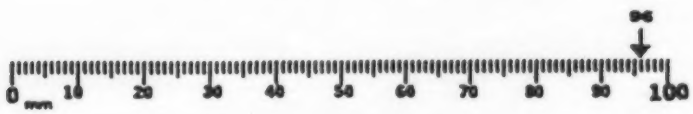

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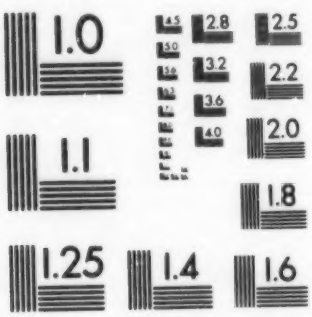

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Operating a Small Manufacturing Business in Alberta

Number Five of a Series

101-07615/

Operating a Small Manufacturing Business in Alberta

Manufacturing establishments vary in size from the one-man shop doing bench-type production to the multi-plant organization that uses assembly-line methods, perhaps even producing its own raw materials.

About 70% of Alberta's manufacturing production is carried on in Calgary and Edmonton. Other centres such as Lethbridge, Medicine Hat/Redcliff and Red Deer are also heavily industrialized. Rural communities account for only 13% of production.

The first major manufacturing developments in Alberta resulted from the development of its natural resources. Today, there is a trend towards the production of a broader range of finished consumer goods. Much of this new manufacturing is dependent upon the development of both domestic and export markets.

When expanding or establishing a business, whether it be retail, service or manufacturing, the task is often difficult and time consuming. While large firms have a greater depth of personnel and management expertise, the manager of a small manufacturing enterprise wears many hats. He has to develop expertise in finance, production, marketing, purchasing, design, plant layout and labor relations. Starting a business also requires a personal commitment both in time and financially.

Attempting to cover all aspects of manufacturing in this handbook would be impossible. For this reason, this publication is aimed at the small manufacturer and will be limited to the provision of basic manufacturing advice only. It should be noted that while the basic principles also apply to a custom shop with small production runs, the main difference will be found in higher unit costs. In a small business the more you can do yourself, the more you will know about your business, and the better your chance of success. This handbook is designed to provide a simple framework which you can use to build a workable plan.

"Operating a Small Manufacturing Business in Alberta" is the fifth in a series prepared by Alberta Business Development and Tourism. Other guides in this series which may be useful to a new manufacturer are, "Starting a Business in Alberta", which provides information on business licenses, tax and other legal obligations; "Financing a Business in Alberta", which provides information on how to fund a small business; and "Marketing for the Small Manufacturer in Alberta", which deals with product, pricing and promotion in a small business environment.

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Chapter One

A Business Plan

Today, technology and the market place have both become more complex than in earlier decades. Native intelligence is still important, but this common sense factor is now only one of the keys to success. Common sense must be combined with new techniques in order to succeed in the modern world.

An indispensable tool for the owner-manager of a small manufacturing business is a business plan. This is actually just a logical progression from a common-sense starting point to common-sense goals.

To build a business plan for his company, an owner-manager needs to think and react as a manager to questions such as:

- What product is to be manufactured?
- Is there a need for the product?
- Are there similar products on the market?
- How can it best be made?
- What will it cost?
- Who will buy the product?
- What profit can be made?
- Is the return on investment adequate?

WHAT BUSINESS AM I IN?

The first question to consider is: What business am I really in? When you first ask this question, it may seem a bit silly. You are probably 100% sure you know the business you are in or hope to get into. However, some owner-managers actually go broke and some waste their time and savings because they are not sure about what business they are really pursuing.

The following questions may help you to decide what business you are in and may help to direct you to look at new lines or new businesses:

- What does the product do for the customer?
- Why?
- When?
- Where?
- How?
- What doesn't it do?
- What should it do later that it doesn't do now?

This is a very fundamental area. The time spent on developing a good understanding of your product and business now will be of great benefit when developing your new business plan.

Chapter Two

How to Get Started

At this point, a brief overview of the legal obligations you should consider may be helpful. After deciding what business you are getting into, you must develop a plan of action. You should now answer the following questions:

- What type of business structure should I choose? A limited company? A proprietorship?
- What licenses or permits will I need?
- If I employ others, what are my responsibilities?

The handbook, "Starting a Business in Alberta", is available without charge from the Department of Business Development and Tourism. This guide provides a description of the types of business formations, licenses, permits, taxes, employer responsibilities and employee deductions.

The following section offers a very brief introduction to legal requirements for manufacturers.

BUSINESS ORGANIZATION

The simplest form of business organization is a proprietorship in which one person performs all the functions that are required for the successful operation of the business.

A partnership of two or more persons is an intermediate form of business organization, more complex than an individual proprietorship but less complex than a limited company.

Sole proprietorships and partnerships must register their business name with:

Central Registry
Alberta Attorney-General
15th Floor, Century Place
9803 - 102A Avenue
P.O. Box 1970
Edmonton, Alberta T5J 3E2
Telephone: 427-5104

A limited company constitutes a legal entity and is distinct and separate from its shareholders, officers and directors.

If you decide to set up a limited company or corporation, contact:

The Companies Branch
Alberta Consumer and Corporate Affairs
2nd Floor, Century Place
9803 - 102A Avenue
Edmonton, Alberta T5J 3E2
Telephone: 427-2311

LICENSES

All manufacturers require a provincial license. This is available from:

Alberta Consumer and Corporate Affairs
Licensing Branch
Offices in Calgary, Edmonton, Fort McMurray,
Lethbridge, Peace River and Red Deer

Some manufacturers may also require a special business license. Pages 12, 13 and 14 of the handbook "Starting A Business in Alberta" show the type of business and the government department concerned.

Each local government within Alberta has the authority to issue its own business licenses within its jurisdiction. Most cities, towns or municipal districts do license manufacturers and should be contacted at the outset. In Calgary, contact the City of Calgary Planning Department and in Edmonton, contact the City's License Branch and Zoning Branch.

In addition, the federal government requires manufacturers to obtain a manufacturer's sales tax license. Briefly, the major points in this area are as follows:

- A manufacturer whose sales are below $50,000 per year does not require a license.
- A manufacturer who exceeds the $50,000 limit part way through the year is required to apply for a license as soon as the sales exceed the limit or when it becomes evident that sales will exceed the limit.
- If a manufacturer is not licensed, he still is allowed to purchase production equipment sales tax exempt as per Schedule 3 Part 13 of the Excise Act.
- If a manufacturer is not licensed, he must show raw materials used in production with the sales tax included.
- If a manufacturer is not licensed and sells to an exempt buyer, then the manufacturer is allowed to claim the tax on raw materials and should claim for a credit to the nearest District Excise Office.
- Persons engaged in the manufacture or production of food, clothing and agricultural equipment do not require a manufacturer's sale tax license.

All enquiries concerning federal sales tax licenses should be directed to:

District Excise Office
No. 200, 10609 - 101 Street
Edmonton, Alberta T5H 2S2
Telephone: 425-5630

Regional Excise Office
No. 605, 5920 Macleod Trail S.
P.O. Box 5555
Calgary, Alberta T2H 2C8
Telephone: 253-7191

EMPLOYERS' RESPONSIBILITIES

Employers are responsible for collecting Unemployment Insurance, Canada Pension Plan and Income Tax deductions from their employees and remitting them to Revenue Canada — Taxation.

Employers are also responsible for collecting Health Insurance Premiums and Workers' Compensation.

TAXES

For Canadian-controlled, incorporated, small manufacturers or processors, the rate of tax is 21% of taxable income. The basic requirement for this special tax rate is that it applies to annual net income up to $150,000 and where accumulated surplus does not exceed $750,000.

For more detailed information regarding taxes, please contact:

Revenue Canada
9820 - 107 Street
Edmonton, Alberta
Telephone: 425-6441

Revenue Canada
205 - 8 Avenue S.E.
Calgary, Alberta
Telephone: 231-4101

IMPORTING

Since the regulations with respect to importing are very complex, it is best to contact Revenue Canada — Customs Operations for information. They have offices in Edmonton, Calgary, Lethbridge and Medicine Hat.

INSURANCE

Insurance needs for small manufacturers vary greatly. It is best to choose an insurance agent or broker familiar with manufacturing companies and, in particular, an agent familiar with your type of operation. It could be a wise decision to ask other manufacturers in your vicinity to recommend an agent.

To guard against serious losses from theft, fire and any other misfortunes, manufacturers need an insurance package designed to meet the firm's protection requirements. A basic plan might include:

Fire Insurance: Covering damage to the premises, equipment and inventory from fire, explosion, wind, riot or smoke.

Liability Insurance: Protecting the firm from financial loss due to any claims of bodily injury or property damage sustained by customers or others on the business premises or during business-related activity.

Crime Coverage: Paying for losses due to vandalism, burglary, robbery and employee dishonesty.

Fidelity Bonds: Place on employees with access to cash receipts or any other company funds, guaranteeing against loss from embezzlement.

Automobile Insurance: For both physical damage and liability coverage for company-owned vehicles or cars used on store business.

Business Owner's Life Insurance: Often partners in a business will purchase life insurance on each other's lives in order that on the death of one partner, the other partners will have the funds to purchase the rest of the business from the deceased's estate. Lenders sometimes require insurance in favor of the lending agency if a term loan is to be made. Some manufacturers place insurance on key employees whose loss by death would cause hardship to the business.

Business Interruption Insurance: Compensating for revenue lost during a temporary halt in business caused by fire, theft or illness.

Health Care Insurance: The Alberta Health Care Insurance Commission provides a health care plan for all citizens of Alberta. The Health Insurance Premiums Act and Regulations state that all employers with five or more eligible employees (owners and partners included) are required to form an "employer group" for payroll deduction medicare premiums. An employer with less than five eligible employees may form a "designated group" on a voluntary basis but, once formed, must abide by the regulations as they apply to an "employer group".

Once a group is in existence, it is the employer's responsibility to cover all eligible employees and make the necessary payroll deductions on a monthly basis. The rates are not reduced for group coverage. The employer is under no obligation to pay a portion of the premium unless he wishes to do so as an employee benefit.

For further information, contact the Alberta Health Care Insurance Commission in Edmonton at 118 Avenue and Groat Road, telephone 453-4366, or in Calgary at 620 - 7 Avenue S.W., telephone 261-6411.

Workers' Compensation Board: Manufacturers in Alberta are covered by the Workers' Compensation Act. This act provides for the compensation of workers who are injured in the course of their employment.

To avoid possible penalties, it is important that the employer contact the Workers' Compensation Board in order to open an account within 10 days of the employment of workers.

Chapter Three

Market Feasibility

The ability to produce an item which the consumer wants at a price he will pay is the key to starting a manufacturing enterprise.

Successful marketing starts with you, the owner manager. The better you know your product, your market, your customers and your competition, the better your chances of success.

Before planning production, the following questions must be answered:

- Who is your customer?
- Where is your market?
- Why will your product be bought?
- At what stage of development is the market?
- Are there seasonal aspects to your market?
- What is your market share? Year one? Year two?

Due to the importance of this topic, Alberta's Department of Business Development and Tourism has prepared another handbook entitled "Marketing for the Small Manufacturer in Alberta". It provides a detailed guide for conducting the market feasibility study for your product. However, as marketing is such an important area, the following gives a brief overview for your information.

TOTAL MARKET

The very first step in any market feasibility plan is to determine how much of the product is really wanted. If the product is currently on the market, then information on past and future expected sales is very helpful. If the product is entirely new, then sales of a similar product can provide a starting point. It is also helpful to determine what area of the market the product will supply. For example:

Market	Fill in % Volume
Consumer	%
Industrial	%
Wholesale	%
Retail	%
Government	%
International	%
Total	100%

In order to help answer these questions, the following sources of information could be used:

- Search bulletins on imported products
- Call wholesalers for volume and dollar figures
- Call retailers for volume information
- Ask people who want the product to find out their volume purchases and frequency

Another major factor to consider is any trend or outside influence which may create an opportunity or pitfall. Some questions to consider:

- What major trends are important to your business?
- Will changes occur in the make-up of the population?
- Are changes in the market due to economic conditions, technological advances or other areas?
- Will any of the following influence your business?

Banking policies
Government departments
Changes in legislation
Publicity for the industry
Consumer action groups

If you are considering international markets, then you should consider the following:

- Is the product competitive?
- Are profits sufficient?
- Are the resources available?
- Do the economic, political and cultural differences pose any problems?
- Is the domestic market fully developed?

MARKET SHARE AND CUSTOMERS

After you have completed the study on the total market, you should decide how much of the total you are prepared or able to supply. This largely depends on the nature of the product and the number of competitors. Again, if your product is totally new and you have no direct competitors, then you may aim for the total market. However, as is often the case, if your product has other competitors you must decide what portion of the total market will be your target.

To better define your market share, it is useful to know how the final user actually views the product you are offering for sale. For example, consumer-related goods require different forms of advertising, promotion and distribution than industrial-related products. When looking at this area, you should also attempt to identify any major customer groups and aim your product at this group.

Directly related to the success of your product is the need to develop a picture of your customer. Look at how the customer views your product and its benefits. To help you develop this picture, the following questions must be answered.

- Who purchases the product or makes the purchasing decision?
- How is the purchase made?
- What is the basic purchase?
- Why is the product bought?
- When is the product bought?
- Where is the product bought?

Again, the information sought will be different for consumer goods than industrial goods.

When looking into this area, you should also try to identify areas of potential growth. This will help to prepare future growth plans.

COMPETITION

An area that is of major concern and one that you must examine thoroughly is the competition you will be facing in the market place. To fully examine this area, you should talk to existing and potential customers, examine competing products, attend trade shows and look at all the information available on competitive products. You must also view competitive firms outside your industry. For example, if you are in the service station business, you should examine the supermarkets which also sell automotive supplies.

When comparing your product with a competitor's, check the following:

- Price
- Durability
- Maintenance
- Sizes

DISTRIBUTION

Now that you have reviewed the market and have made a management decision regarding market share, the next question to consider is how you will get your product to the ultimate consumer. There are various channels of distribution which you might consider: direct sales through your own sales force, or indirectly through middlemen such as — manufacturer's agents, brokers or wholesalers.

It is very important to realize that no matter which method of distribution you choose, there will be a cost which you must consider. This cost has to be included in the price structure which you will prepare later. Look at how the product will be shipped and at what rate.

Another area to consider is the use of special marketing, sales or merchandising techniques. If you plan to use any special programs, then weigh the benefits to be gained versus the cost involved.

OPPORTUNITIES FOR DEVELOPMENT

Now you are ready to use all the information developed so far to decide how to proceed. When making this decision you should look at the four main ways by which a business can grow:

1. Innovation — The most difficult and costly method to introduce a new product into a new market.
2. Strong in Manufacturing — New product development for use in established markets.
3. Improving Existing Products — More business from existing markets, usually the most immediate results at lowest cost.
4. Strong Marketing Organization — New market development, identify new markets for existing products.

Once you have reviewed all areas, you should then forecast what you expect your business to do in the first year. You should also set a realistic objective based on what you expect will happen, taking into account the changes you will introduce as well as the inevitable competitive and industry-wide changes in the market place. The difference between forecast and objectives is your planned growth. Your planned growth should be compared to the market trend for the future (say five years) to determine its feasibility.

Chapter Four

Manufacturing

LABOUR PROCESS COST

You have already decided how much you are planning to sell. The next area to examine is the plant and equipment needed to produce your product. This will require a fairly detailed look at all the activities involved in turning raw materials into a finished product.

A variety of data is required and this data should be prepared with care in order to ensure accuracy and up-to-date information whenever possible.

If not already done, a detailed listing of product specifications and scale drawings should be prepared. This will assist you when determining the manufacturing processes involved and materials required.

The first major step is to prepare a list which will show all the basic operations required in making the product. For example, cutting, welding, assembling, gluing and painting may be required to produce the item. One very simple method is to prepare a sheet which shows the operation and expected time required to perform each step. If timing for one unit is too small, then use the time for one production run of a given number of units. A sample sheet follows:

Item: (Name of goods being produced)			Quantity: Y units	
Step	Operation	Time (hour)	Rate	Amount
1	Cut material	2.0	6.50	13.00
2	Lathe	1.5	7.00	10.50
3				
Total				23.50

In addition to the cost factor, the following information is important to analyze with regard to labour:

- Are special labour skills required to perform the tasks? If so, is the labour available locally or at the anticipated plant site? If not, where can the required labour force be found?
- Detail any planned labour training programs. Are these training programs eligible for subsidized wages through the Canada Manpower Industrial Training Plan?
- Will you consider any special incentive programs for the work force? Will a bonus system be used for extra production? A profit-sharing plan?
- Prepare a detailed plan for labour requirements and estimated rates for the next five years.

The following chart may be used to plan labour in the future:

Plant Personnel

Position	Year 1	Year 2	Year 3	Year 4	Year 5
Manager	20,000	22,000	25,000		
Foreman (for Unit 1)	15,000	17,000	18,000		
Foreman (for Unit 2)			17,000		
Grinder	10,000	11,000	12,000		
Assembler	10,000	11,000	12,000		
Assembler (Unit 2)			11,000		
Welder	20,000	22,000	24,000		
Total					

You should also consider any government regulations regarding minimum wage rates, and the question of hiring union or non-union employees.

RAW MATERIAL COST

The next step is to prepare a list of raw materials required in the process of making the product. Estimate the amount of materials required for one unit or, if a unit is too small, the amount required for a larger standard such as one production run of a given number of units. A sample sheet is shown below:

Item:			Quantity: Y units
Description	Quantity	Price	Amount
Stainless Steel	100'	2.00	200.00
Screws	8	.15	1.20
Paint (grey)	1 quart	4.50	4.50
Total			205.70

Given the above cost factors, it is also very important to consider the following points:

- Where will the raw materials be acquired? It may be very useful to prepare a list of the various sources for each item showing the price, delivery and any special features. A suggested list appears at the bottom of this page.

- Prepare plans for alternative sources. Your firm may be unable to acquire the materials from your main sources, so identify an alternate supplier who could fill the order, and what the cost, delivery and quality factors would be.

RAW MATERIAL SOURCE LIST

Material	Source	Price	Delivery	Special Features
1. Stainless Steel	Kuny Steel	$100/sq. ft.	2 weeks min.	Meets all specs.
	P.A.G. Steel	$105/sq. ft.	2-3 weeks	Provides credit
2. Paint	Rife Ltd.	$4.50/gal.	Immediate	High quality

- Are volume purchase discounts available? You must be very careful in this area since your entire requirements may only be a small volume to the supplier. If he runs short, you may be the first to be cut-off. On the other hand, purchasing through many suppliers might ensure supply, but there may be no volume discount. Are there minimum volume requirements?
- If using a depleting resource, are there any government regulations?
- What allowance must be made for processing waste and other shrinkage?
- Check other environmental constraints.
- Provide a list of small miscellaneous shop materials which will be required. Ensure all such supplies have been included in costing calculations.
- Do any of the materials have special storage requirements? Are any chemical units required to be in a fire-proof area or do they deteriorate in storage?
- Is freight included in the price? If not, what will be the cost for transportation to the plant?

EQUIPMENT

It is now time to examine the process necessary to produce the product and to provide details of equipment required and its cost including any tax, freight and installation charges.

As modern equipment is very costly, you might consider whether to (1) purchase new equipment, (2) purchase used equipment, or (3) lease the equipment.

Look at each alternative in terms of cost, interest charges for financing, and taxation.

You should also consider the various types of machines and again determine the cost, mechanical advantages, delivery time and serviceability. It is very important to choose the right equipment, but it may not be necessary to purchase the top model if a less costly model will perform the same functions.

PLANT LAYOUT

Having looked at the labour and equipment requirements, the next factor to consider is the planned layout of the building required to make the product. Include restrooms, receiving areas, raw material storage, finished product storage, office space, parking and, of course, the manufacturing area. Making a layout is a major undertaking, and requires time and considerable preparation. The results derived from a good layout or a new layout are sometimes phenomenal. Lower materials handling costs, less travel for all materials, more convenient and efficient work places — all this can result from a well planned layout permitting production to flow with a minimum of friction.

Many small plants of today will be medium-sized plants of tomorrow. Much of this growth is gradual and constant. Careful planning for the addition of machines and work places often increases the volume that can be produced within present building space.

Coupled with the small plant susceptibility to technical advances is the need to keep up-to-date. Most small plants rely on a very minimum number of processes. Thus a drastic change in any method in one of these processes can affect the entire competitive position of the company. In addition, plant layouts are very necessary

when considering new product lines, new buildings or just to cut costs through more efficient operations.

Many small plants are organized on a product basis — sometimes with only one or two production lines. Where a limited variety of items is produced and the same processes — and sequence of operations — are required on all of them, it is more economical to have the processes and machines arranged in order of their use so that materials move directly from one machine to the next, and from receiving to shipping areas.

Advantages of a Production Line:

- Reduced processing time
- Lower handling costs
- Easier material scheduling
- Lower inventory of materials in process
- Tighter control over operations
- Lower unit cost

Disadvantages:

- Ideally suited to a high and constant level of production
- Higher investment for equipment and a higher rate of production may be required to keep above the break-even point of costs.
- Could lead to price cutting in a tight market
- Tight supervision is required because failure of any machine may shut down the entire production line
- A new product may mean another production line

The other method of layout arranges machines according to process or type, or groups them according to production lines. This type of layout is particularly suited to job-lot manufacturing because of its extreme flexibility in producing a wide variety of products with the same equipment.

Advantages of Job Lot Production:

- Flexibility
- Ease of new product introduction
- Production flow

Disadvantages:

- Routing and scheduling problems
- Higher materials handling costs and space for storage of materials-in-process
- Operations control is harder, can cause delays
- Cost control very difficult

When the disadvantages (particularly lack of flexibility) and the objections (principally high final costs) can be overcome, practice tends to favor the product or line-type of layout as providing the most efficient production arrangement. There are many job-shop situations, however, where the line-type of layout is not feasible or economical.

Given the above, many companies combine the two types of layout under one roof. Often, it is not practical to change overall or establish the work of a plant to a product-type of layout, but it can be done for one or two lines which may comprise a large percentage of the total output of the plant. Thus the company retains all the flexibility of its job-shop facilities and gets the benefit of the lower

cost of the straight line production on the greater part of its total output.

Recognizing the importance of flexibility, there are many ways by which machines, work benches and other equipment can be arranged to permit easy movement. It should be remembered, however, that only certain types of equipment, such as that which is self-contained, electrically or manually operated, is easily moved about. One company mounts its presses on skids so that they can be moved by fork-lift trucks; another company puts its movable equipment on castors. Mobility of equipment is one way to get all the advantages of a product-type layout, and at the same time retain the flexibility of the process-type layout.

Generally, if a company is planning a change in layout, there are certain costs which must be offset before embarking on the program. Some of these costs are:

- Planning cost of an outside consultant
- New equipment costs including delivery
- Structural changes or new construction
- Utility changes
- Moving machinery costs
- Indirect, such as time spent by employees

Whether starting or expanding your plant, you should know your present and future space requirements. When planning your layout, check the following:

- Elements of the plan which are the most expensive to change, for example, heavy equipment
- Does location of the heavy equipment limit the direction of expansion?
- Location of basic input and outgoing areas
- Growth of each element of production
- Planned expansion of plant and required equipment
- Lines of material flow

You should develop an ideal layout that establishes a goal. As changes occur, revise the layout or make all future moves conform as closely as possible to the ideal layout.

Now that you have developed your own ideal layout, you are ready to adapt that layout to the reality of buildings with certain structural and design limitations. This may prevent you from realizing your ideal layout, but with ingenuity, resourcefulness and compromise, you may be able to come up with a similar plan at a realistic cost.

Finally you are ready to prepare the layout. The first step is to get accurate drawings of all buildings and other facilities to be used. Pay particular attention to any structural features which may limit your planning. If multi-floor structures are involved or you have to move any heavy equipment, be sure that floor load capacity is sufficient or is checked by a qualified engineer. If the building is of recent construction, you may be able to obtain the original drawings, but it is a good idea to check all critical measurements as changes are sometimes made during construction. If you are designing or building your own plant, then you can tailor the building to your own special requirements and will probably make your own building plans. In either case, it is important to check all utility outlets as it is necessary to know the exact location for future planned moves.

To help save time in planning the layout, the following aids may be used:

- Overlays: These are tracings made over other tracings or drawings of the building
- Templates: Two-dimensional representations of machines showing dimensions and other equipment or space requirements
- Scale models: Provide maximum visual aid.

There is only one secret to a low-cost change in layout or planned layout, that is, careful planning and detailed checking.

Don't be afraid to get critical comments before you make a change or implement a plan. It is cheaper to get comments before a final decision is made and definite plans are implemented. It may also be very beneficial to have a number of alternate plans. If so, consider the advantages versus disadvantages and, whenever possible, prepare cost estimates for each plan and production costs under each alternative.

The following facilities layout checklist showing various area and service requirements may be useful when evaluating your layout:

Facilities Layout Checklist
Criteria

1	Market Volume		
2	Market Duration and Cycles		
3	Market Sequences and Variations		
4	Product Recycling and Repair		
5	Number of Parts		
6	Inventory		
7	Process Charts (Material Flow)		
8	Assembly Charts (Material Flow)		
9	Work Area		
10	Storage Area		
11	Service Area		
12	Flexibility		
13	Supervision		
14	Housekeeping		
15	Security		
16	Packaging		
17	Repair and Recycling		
18	Shipping and Receiving		
19	Vehicle Service		
20	Painting		
21	Curing		
22	Material Processing		
23	Metal Fabricating		
24	Working Conditions		
25	Personnel Movement		
26	Training		
27	Tool Room		

Services

1	Lighting		
2	Heating		
3	Ventilating		
4	Power Electrical		
5	Power Air		
6	Fire Protection		
7	Maintenance		
8	First Aid		
9	Rest Room		
10	Lunch Room		
11	Clearances Height		

RENT OR PURCHASE FACILITIES

As a result of today's increasing land and building costs, many businesses are looking very closely at the question of renting or purchasing their facilities. In many cases, manufacturers have purchased their buildings which, if sold, would realize substantial increases in property values. However, generally speaking, most manufacturers are not in the real estate speculation business, and should not purchase property. Some manufacturers have failed simply because they have had their capital tied up in buildings when it could have been better used in the business itself.

If you do decide to purchase your plant building, keep in mind that if you should want to sell your business, it might be harder to find someone with enough capital to buy both the business and the building.

If you put your money into a building of your own, that money should bring you an income just as if you had invested it somewhere else. In your accounts, the plant should be charged with either rent or interest, maintenance, insurance, depreciation and other expenses of owning a building. If this point is overlooked, the amount shown as net profit will be overstated.

If you rent your building, be sure that you will be able to stay in the same location if it proves successful. At the same time, you should be free to move after a reasonable length of time if the location does not prove satisfactory. A short-term lease with option to renew is the best way to take care of both of these possibilities.

Often it is a good idea to have a lawyer or real estate person familiar with lease agreements check your lease. He might be helpful in tailoring a fair contract and in making useful suggestions on available options. If you are borrowing money from a lending institution, the loan officer will probably want to examine the lease.

Before signing a lease be sure to check it thoroughly. Notice details such as:

- Can built-in equipment and fixtures be installed and removed?
- Who takes care of repairs such as plumbing, electrical or air conditioning?
- Who is responsible for maintenance and supplies?
- Who is responsible for alterations?
- Who is responsible for payment of utilities?
- Who is responsibe for insurance on the buildings and properties, including liability insurance?
- Can all or any part of the property be sublet?
- Are there any mortgages, liens or other cliams against the building?

When considering a potential facility, determine if there is room for expansion if business warrants.

BUILD YOUR FACILITIES

Although usually not a feasible alternative for a small manufacturer, there is the option of building his own plant. This is the most costly method but the manufacturer ends up with a plant specifically designed for his particular venture.

If this is a viable alternative, then you will want to determine plant costs by estimating the cost of the plant including land, design engineering, construction, heating, lighting, sprinkler system, parking area, fencing and landscaping.

If the land is not fully serviced, you will also need to estimate the cost of installing services to the plant. These services include domestic and processing water, fire fighting water to underwriters' standards, domestic sewage system, plant effluent system, storm sewers, and other services such as hydro, telephone and natural gas. You should also consider plant protection, access roads or rail spur, and air pollution controls.

All construction specifications must meet provincial construction regulations.

PLANT LOCATION

As shown in the following diagram, the selection of the ideal plant location should be examined under the main categories: factors relating to region, factors relating to the community, and factors relating to plant site.

Regional Factors		Community Factors		Site Factors		
Source of raw materials Labour availability Transportation Costs —In & Out Climate Operating Costs Capital inducements Proximity of markets	+	Attitude Facilities Sites	+	Land site Building —Lease/Buy Municipal by-laws Site services	=	Plant Site

The final choice of location will influence the company's capability to raise debt financing, its manufacturing costs, its cost of plant facilities (rent or erection) and the quality of labour available.

A number of factors influence the choice of plant location as it relates to a region. Most of these have to do with basic production factors such as source of raw materials, labour availability, transportation, fuel, power, water, climate and overall operating costs. Other factors such as proximity of markets, existing plants, and capital inducements from municipal, provincial or federal government agencies should also be considered.

Once a firm has selected a region which will be economically attractive and suitable, the next step is to determine the most ideal community. There may be dozens of communities within a 100 or 200 mile radius. All factors mentioned under the choice of a region would again be considered when selecting a community; however, more specific factors such as community attitude, community facilities and industrial sites should also be fully investigated.

When the general location of a plant has been determined, you will then be ready to select a specific site. This analysis requires an assessment of the following factors: land site, leasing or buying or building a plant facility, municipal by-laws, site services, and even the general appearance of the location.

Statistics Canada publishes a series of information booklets dealing with statistics for various businesses and business problems. Manufacturers can obtain a free copy of the handbook, "How a Manufacturer Can Profit from Facts", by contacting:

Statistics Canada
User Advisory Services
1000, 10025 - 106 Street
Edmonton, Alberta T5J 1G9
Telephone: 425-5052

Albertans outside Edmonton can telephone toll free: 1-800-222-6400.

This manufacturing handbook provides information sources on:

- Size of market estimates and market share
- Your competition (domestic and foreign)
- Customer profiles
- Your costs and those of similar firms
- Trends in employment
- Price change monitoring
- Use of escalation clauses in contracts

OVERHEAD COSTS

When it comes to determining your product cost and final selling price, one area which must be included in your calculations is overhead costs. These are all costs other than direct labour and material. They include general supplies, utilities, management and clerical salaries, interest expense, insurance, telephone, taxes and depreciation. It is advisable to list all the overhead expenses and then classify each expense into categories such as selling, administration and operating. For example:

Manager's salary	$1000 per month	Operating
Driver	$ 100 per week	Selling
Janitor	$ 50 per week	Administration
Telephone	$ 50 per month	Operating
Rent	$1000 per month	Operating

If you are starting a small manufacturing plant, actual figures should be used whenever possible. However, expected costs can be substituted if they appear reasonable. For a manufacturer already in business, the figures should be available from the latest set of financial statements, specifically, the income statement.

INTEREST EXPENSE

Part of the overhead figure is called interest expense which represents the cost of borrowing funds. A simple method for calculating the amount to be borrowed and interest expense is shown in the example below:

Estimated costs of plant and equipment	$200,000
Estimated cost of required raw material stock	30,000
Estimated finished goods inventory	25,000
Estimated value of sales on accounts receivable for the period of credit	10,000
Total capital requirements	$265,000
Less estimated personal money invested	75,000
Estimated amount to be borrowed	$190,000

Having arrived at the amount to be borrowed, a telephone call to your local banker will provide information concerning repayment period, interest rate and proposed repayment schedule. Usually the repayment figure includes principal plus interest. The interest expense portion can be estimated by yourself or the bank.

DEPRECIATION

Allowance must be made for the cost of using buildings, machinery and equipment which all have a fairly long life expectancy, but over time lose value through age, wear or obsolescence. Depreciation (also known as capital cost allowance) allows for the loss of value of fixed assets and is a cost of doing business. Depreciation should be included when calculating expenses. While depreciation is an overhead expense, it is usually shown separately on the income statement.

There are several methods used to calculate depreciation, but the simplest and most commonly used is the declining balance method. Under the declining balance method, an equal percentage of the declining value of the asset is deducted each year over the life of the asset. Revenue Canada — Taxation provides depreciation rates allowable on various pieces of equipment and buildings.

If, for example, you purchase a one-ton truck for $10,000, depreciation is based on the Revenue Canada rate of 30%. Depreciation expense is as follows:

First year depreciation would be $10,000 x 30% =	$3000
Cost on book $10,000 - $3,000 = $7,000	
Second year depreciation would be $7,000 x 30% =	$2100
Cost on book $7,000 - $2,100 = $4,900	
Third year depreciation would be $4,900 x 30% =	$1470
Cost on book $4,900 - $1,470 = $3,430	

In addition to the allowable annual rates, the federal government has introduced an investment tax credit plan. Under these regulations, all new equipment used for manufacturing or processing is allowed a further 7% tax credit for depreciation which is calculated and deducted from the taxes payable figure. Some areas of Alberta are eligible for a 10% tax credit and it is advisable that you contact Revenue Canada to obtain more detailed information concerning this tax credit.

TOTAL OVERHEAD

Now all operating, selling, administration, interest and depreciation costs can be accurately estimated, and a total figure for overhead expenses can be calculated. Then by dividing the overhead total by planned production, you will arrive at an average overhead cost per unit produced.

It is very important to remember that this overhead cost per unit is only an approximate figure and is based on the planned production forecast. If for various reasons the planned figure is not reached then the overhead cost per unit will increase. Since accurate cost figures are essential, the overhead cost calculation should always be closely monitored. As new production figures and new cost figures become available, new costings should be determined.

Example: Overhead costs per year at $6,000

If planned production is 10,000 units, overhead cost per unit is	.60
If production drops to 8,500 units, overhead cost per unis it	.706
If production increases to 12,000 units, overhead cost per unit is	.50

DETERMINING PRICE

In doing your market research for a product, some comparison of competing products must be performed. This comparison will soon show you what the market price for the product is. You should also analyze your competitors' advantages in regard to price. A price range may then be established. It is just one consideration for you to keep in mind when determining your price.

The other part of your pricing decision is the simple fact that you must be sure to have identified all product costs. Although this may sound very obvious, many businesses fail or have poor financial results as a direct result of omitted costs. If you have several products, some may contribute to profit while others do not. It is imperative to a business to identify the products which are losing money.

From previous areas outlined in this handbook, we have identified the major unit cost components: direct labour, direct material, and overhead. Taken together, these represent total cost per unit.

It is very important to realize, however, that this total cost figure is likely to underestimate the true total direct cost figure. The reason for this is that other intangible areas such as machine set-up, idle time and coffee breaks have real cost implications. If these factors have not been considered, then a miscellaneous element must be added to the costing calculation before determining price.

An example of calculating true total cost per unit is as follows:

Direct labour per unit	$2.40
Materials per unit	.80
Overhead per unit	.20
Miscellaneous per unit	.10
Total Unit Cost	$3.50

Arriving at a figure for this miscellaneous safety factor is very difficult. It can best be arrived at by yourself since each factory runs at different levels of efficiency.

You can now determine a price for your product, knowing how much you must charge per unit of output in order to recover direct labour, direct material, overhead, a safety factor for miscellaneous unpredictable costs,

plus

sufficient profit to provide you a reasonable rate of return on your investment.

Chapter Five

Financial Analysis

Finally you are ready to determine whether you have made, or will make, a profit after paying expenses. Having figured out the total cost and the amount of money required to start or expand your business, you can determine the financial feasibility of your plans. If the cost exceeds the revenue (thus no profit), a decision will be required. As many small businesses have difficulty making a profit in the first few years, you will require careful planning, good management and financial assistance to carry the firm over such a loss period. However, you may also decide that a better plan of action is to invest your money in stocks, bonds or guaranteed investment certificates, rather than putting in long hours for an uncertain future return from your own small business.

The figure which ultimately represents profitability is "net Profit after taxes". To help in determining the profitability of your plan, the following general areas and cost schedules are required:

- Operating expense schedule
- Capital cost of fixed assets
- Initial working capital requirements
- Depreciation schedule
- Interest and principal schedule
- Pro forma profit and loss and cash flow schedule

By way of sample:

Cash Operating Expenses

Selling and Administration		
Salesman	$5,000	
Clerk	4,000	
Janitor	2,500	
Driver	4,000	
Total	15,500	
Operating Expenses		
Manager	10,000	
Telephone	600	
Electricity	6,000	
Rent	12,000	
Miscellaneous	2,000	
Total	30,600	$46,100

Capital Costs of Fixed Assets		
Lathe	$25,000	
Benches	2,000	
Tools	5,000	
Leasehold improvements	7,000	$39,000

Initial Working Capital Requirements		
Inventories		
Raw materials	$25,000	
Finished goods	5,000	
	30,000	
Accounts Receivable	25,000	$55,000

Depreciation (Assume all items at 20% rate)

	Expense	Balance
Year 0	—	$39,000
1	$7,800	31,200
2	6,240	24,960

Interest and Principal Schedule

Loan of $100,000 at 12% for 5 years $2,210/month

	Payment	Interest	Principal
Year 1	$26,520	12,000	14,520

Pro Forma Profit and Loss and Cash Flow

	Year 1	Year 2
Sales	$400,000	
Cost of Goods Sold	300,000	
Gross Profit	100,000	
Cash Operating Expenses	46,100	
Interest — Term Loan	12,000	
— Overdraft	2,000	
Depreciation	7,800	
Total Expenses	67,900	
Net Profit before Taxes	32,100	
Income Tax	7,100	
Net Profit after Taxes	25,000	
Depreciation	7,800	
Cash Flow	32,800	
Repayment of Principal	(14,520)	
(Overdraft)/Bank Balance	$18,280	
Cash Flow	$18,280	

FINANCING

The Alberta Department of Business Development and Tourism handbook in this series entitled "Financing A Business in Alberta" provides a guide on how to arrange proper financing for a business in Alberta. It is available free, upon request. Nevertheless, it is appropriate to briefly discuss this subject here since financing is such an important aspect of manufacturing.

Arranging financing for any business can be a difficult task, especially at the outset. The manufacturer has major problems in that the capital requirements for equipment, starting raw material inventories, and operating cash usually require large sums of money. Furthermore, when banks and other commercial lending institutions analyze a new manufacturer, they study management, past experience, type of industry and specialized machine requirements. The need for specialized equipment then creates a problem in that, if foreclosure becomes necessary, they generally have to discount the equipment heavily in order to recover cash from it. Each individual loan for a business is viewed on individual merit and risk factor.

In some instances inventory will be financed by lending institutions up to 65 percent of the value of the inventory. When inventory advances are made, there usually is a ready market for the goods in question, assuming that they are not perishable or subject to early obsolescence. However, in most cases of inventory financing, good rapport has been established over a period of time between the lender and the borrower.

When starting a manufacturing business, certain cardinal rules of financing should be observed. A new business usually does well to minimize its fixed capital outlays to the greatest extent possible. For

and if possible, lease equipment instead of purchasing it. Although this policy may appear more expensive over the long run, it means that the business will have more money available for current expenses and purchasing inventory. Money used for working capital can normally be recaptured quickly through inventory turnover, but money tied up in fixed capital assets is harder to retrieve. Therefore, consider financing fixed assets, such as leasehold improvements, cash register and motor vehicles, leaving your cash resources available for current operating expenses and/or inventory purchases.

Plan your financing requirements well ahead. It is important to approach your banker early. A lender does not want to be approached at the last minute with a crisis situation such as a payroll you are unable to meet. Be prepared when you go for a loan. Present your banker with a written business plan describing your intentions and business prospects. Prepare a cash flow or budget as described in this handbook and "Financing a Business in Alberta" which demonstrates your business' ability to service debt.

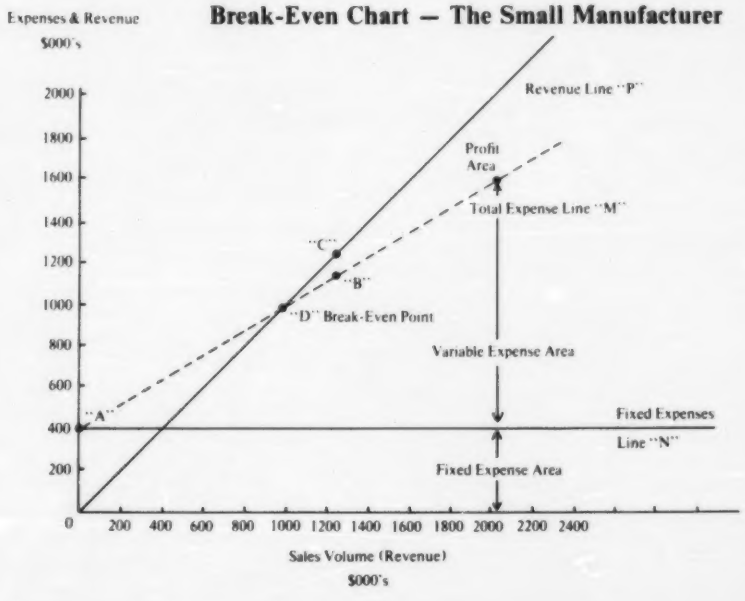
Demonstrate to your banker that you have the business well under control. Keep him informed on any significant developments in your business, and provide financial data regularly. When a problem occurs, often reasonable solutions can be found if the businessman puts forward an honest front with a plan to tackle it. It is to your advantage to develop a good relationship with your banker. It is advisable to ask business acquaintances about the bank they use, and to deal with a banker who will be interested in your business and will sympathize with your aspirations. There are many sources of financing a business in Alberta. Building your business on a sound financial base is one of a manufacturer's most important jobs.

BREAK-EVEN ANALYSIS

As previously mentioned, all sales forecast figures are estimates and uncertain at best. Therefore, it is important for a small manufacturer to know approximately what cost changes can be expected to coincide with volume changes. He must also know what levels of production and sales volume are necessary to just cover expenses or make a profit. Break-even analysis will assist the owner to find the point where sales volume shows revenues and costs to be equal. At this volume, there is neither profit or loss.

The following chart will help illustrate the break-even point:

Break-Even Chart — The Small Manufacturer



Step 1: On the horizontal axis mark off a scale that represents sales volume. On the vertical axis mark off a scale representing revenue and expense items. Draw fixed expense line "N" which represents fixed expenses of $400,000 that does not change over various level of sales.

Step 2: Plot point "B" as determined by the total of fixed and variable expenses on the vertical axis ($1,120,000) and total sales volume on the horizontal axis ($1,200,000). Draw line "M" starting at "A" and extending through "B". Line "M" represents the total expense line. Expenses both variable and fixed at any level of sales can be determined from it. This can be done by simply reading upward from sales volume to the total expense line "M", and then over to the vertical axis where the dollar amount of expenses can be found.

Step 3: Plot point "C" which outlines the total sales volume and total revenue or $1,200,000 on both scales. Draw revenue line "P" starting at "O" through point "C". The break-even point is at point "D" where the total expense line "M" intersects revenue line "P". Therefore, as shown on the graph, the break-even point is where sales are $1,000,000 to cover total expenses of $1,000,000.

The advantage of a break-even chart is that you can readily see what level of sales are required to obtain profits. For example, according to the chart given, if sales volume totalled only $800,000, total expenses would be greater than total revenue, thereby indicating a loss. However, if sales volume amounted to $1,800,000, total revenue would be much greater than total expenses resulting in a good profit.

Another method of determining your break-even point is shown below:

Selling Price	$100.00 per unit
Less Total Cost	81.50 per unit
Contribution Factor	$ 18.50 per unit

Minimum amount to cover total expenses (from Pro Forma Profit and Loss example)

$$\frac{\$67,900}{\$18.50} = 3,670 \text{ units}$$

Sales in dollars = 3,670 x $100 = $367,000

From the above, you can then prepare a break-even market share figure.

Total Market 20,000 units

$$\text{Break-even Market Share} = \frac{3,670}{20,000} = 18.35\%$$

The problem with using any analysis technique is that the validity of the method depends largely upon the accuracy of the basic data figures — the fixed and variable cost classifications, cost estimates and volume estimates. Errors in any one of the factors will cause mistakes in the computations, and may result in erroneous decisions. Therefore, the small manufacturer should continually review the way his costs are classified and accumulated, and he should be very careful in making cost estimates.

Chapter Six

Other Areas to Consider

INVENTORY REQUIREMENTS

Besides all the marketing and manufacturing items, the small manufacturer should review a number of other areas.

A good general rule is to maintain the lowest inventory levels possible. Inventories — raw materials and partially or fully finished goods — all consume cash, and the more cash sitting in the form of inventory items the less working capital. However, some raw materials are required to produce the goods, and some goods will be needed to fill sales orders.

Thus the key is to develop an inventory control system designed to meet customer orders while minimizing all the costs associated with inventory. The two significant costs which should be considered are holding costs and ordering costs. A brief description of each follows.

Holding costs include interest expense of dollars in inventory, handling and counting, insurance, inventory losses through damage, theft, deterioration or obsolescence, and physical storage space.

Ordering costs are those connected with the review of current materials and decisions regarding placing an order, selection of a supplier (time, evaluation), preparing the purchase order, follow-up if order is lost, receiving and inspecting the order, placing in stock, posting to an inventory record, and preparing cheque for payment.

An effort must be made to co-ordinate sales and production which then requires inventory. The following basic guide will help in keeping inventory levels of finished goods at a reasonable level.

Estimated Sales
+ Planned Finished Goods Inventory End of Month

— Planned Finished Goods Inventory Beginning of Month
= Production Requirements

The key to maintaining adequate inventories hinges on the inventory control system in place or to be implemented. An aid is proper materials storage. This can help reduce counting time and value assessment will be more accurate. If possible, attempt to store all materials in bins or areas which will hold a given number of units. You might even attach a card or tag to the item of raw material or bin that contains the item. As units are added or withdrawn, the card will be recorded as in or out. Thus when you require a count, you just total the cards for the items and a fairly accurate estimate of raw materials is ready.

A sample card is shown below:

ITEM:			
DESCRIPTION:			
ITEMS ON HAND:		DATE:	
COUNTED BY:			
RECEIVED AFTER COUNT		ISSUED AFTER COUNT	
Invoice	Quantity	Requisition	Quantity

MAKE OR BUY COMPONENTS

Most small manufacturers buy a variety of parts from outside suppliers for use in assembling their finished product. Often the manufacturer could make a part in his own plant instead of buying it from an outside source. An important question to be answered is whether the manufacturer can produce the part at a lesser cost than the purchase price from his supplier.

In order to determine the answer, the manufacturer should do an analysis to determine his cost. He determines the volume he requires and then finds all variable costs, that is, material, labour and overhead (interest), all other final costs, including new equipment and cost.

Given the above, the manufacturer can determine his own cost per unit, and whether it is less than his suppliers' price. He must also decide if any cost saving is enough to justify investing more funds into special equipment or if these funds could be invested to better advantage elsewhere.

REGULATIONS

As previously mentioned, various manufacturers may be required to meet special license requirements. Since manufacturing covers a very wide number of processes, the business may be required to meet government regulations. Two examples are The Clean Air Act and The Clean Water Act.

It is very important that all manufacturers ensure they are aware of any government act which will require meeting various standards and following certain guidelines. For pollution control, contact the Department of Environment for details.

Chapter Seven

Personnel

Most small businesses enjoy a good reputation for employer/employee relationships. Nevertheless, obtaining and keeping good employees has to be one of the more crucial elements of any business. Good employees are a definite asset to your business. In a small manufacturing firm, all the employees working to assemble or make a product will eventually determine your productivity, profitability and product quality. Employee attitudes and ability will affect your business, and, therefore, deserve attention.

Before any employee is hired, the manufacturer must consider the need, and determine if additional staff is required. Sometimes careful planning and study will reveal some other way to accomplish the goal rather than by hiring an additional person. A new employee creates costs in administration expenses, record keeping, fringe benefits, advertising, interview and training costs, and of your own time.

JOB DESCRIPTIONS

Job specifications and performance standards, including a written description of each job, should be used in selecting personnel, in training those selected, in preparing for future promotion, and in keeping salaries and wages balanced to the degree of responsibility and skill required.

The following is a brief sample job description:

Welder

Duties:	Working on roll equipment, pressure vessels, or on fabrication of steel and some nickel metals.
Responsible to:	Foreman
Requirements:	"B" pressure ticket; able to read blueprints and design layouts. Some experience required on heavy vessels.

In carrying out the duties of his job, each employee should take orders from, and be under the direct supervision of, only one person in order to avoid the conflicts of divided responsibility. Setting the functions and lines of authority of your employees down on paper will assist each employee to understand his responsibility and the relationship of his work to that of others in the business.

COMPENSATION

Wage and salary should be competitive with local firms, and be adjusted to the difficulties and responsibilities of each job within the firm. Some determinants in setting salary levels are: the minimum wage, union scales, salaries for similar jobs in the area, the previous salary and experience of the applicant, and his potential to add to company profits. For incentive purposes or for special production requirements, it may be helpful to offer a production/quality bonus system based on overstandard production.

One major concern of employees is job security. Employees require attention and recognition for work well done. Be sure to encourage your staff and be responsible to them. A benefit which may be considered is a pension plan for your employees. A firm's small size is no longer a barrier to the introduction of such plans through a reputable insurance agency. Building even a small permanent staff today demands inclusion of such employee benefits.

The role of employer calls for authority, but using this authority coupled with imagination, tact, patience and understanding will produce a better employer/employee relationship. The employer must handle all personnel problems without delay; a good plan to use when approaching a problem is to be open, attentive and direct. If a

personality conflict develops between employees, the employer must be able to deal with the situation quickly and in a non-partisan manner.

MOTIVATION

The biggest task facing an employer is employee motivation. All people are motivated differently. Some employees will work strictly for their wages. Others will work as a team and enjoy doing a job well. Some employees thrive on being given additional responsibilities, while others may fall apart. Similarly, some employees need constant encouragement and attention, while others require little attention.

If being a personnel manager is one of the independent businessman's major problems, it is also one that will bring some of his most gratifying rewards. Helping his employees develop their full potential has its own satisfactions, as well as making a solid contribution to the success of the business.

Chapter Eight

Business Records

COST ACCOUNTING

The primary objective of a good set of business records is to provide information which management can use in directing the operations of the business. Good records are a very important tool for management decisions. A record system should tell a manager how efficient the plant is being run, as well as pointing the way to cost reductions and to other plans that will increase profits.

A useful and effective system must be easy to understand, flexible, simple and efficient to operate. The system should be designed to provide information useful to management in a direct and economical manner. There is no advantage in having a system accumulate information for the sake of accumulating data. Flexibility must be built into the system which will allow the manager of a small manufacturing business to change and readjust to the needs of regular customers.

The key to most manufacturers' business records systems is the cost accounting system. The basic cost accounting needs of a small manufacturer are like those of a large business. However, a small manufacturing business is not in a position to gather the amount of detailed information that might be practical for a larger company.

The manager of a small manufacturing plant should receive the following data from his cost accounting system:

- Results of past operations — costs per unit, costs per unit per department, costs per unit of service (if a service department).
- Information on changes in cost from period to period and, if possible, comparisons of costs to average costing.

The information received should be interesting to the manager, and useful if it leads to action. It must always show the way to increased efficiency, increased production and increased profits.

Because of the need for accurate and complete information required from the cost accounting system, it is strongly advised that an outside accountant or bookkeeper be used in setting up your books. An accountant is usually called upon to prepare the business' annual financial statements and is in a good position to offer business advice. However, the businessman should know his system and be able to prepare or extract certain information as required.

The cost accounting system should include a group of journals, ledgers, cost records and control records. The number and kinds of journals and ledgers will depend on the type and volume of transactions, the type and volume of costings required.

For a small manufacturer, the records should at least contain the following:

- A record of all monetary transactions — sales and disbursements
- A record of petty cash and bank deposits
- A record of purchases and accounts payable
- A record of accounts receivable
- A record of inventory
- A record of equipment and depreciation
- A record of payroll

MONETARY TRANSACTIONS

A small manufacturer may or may not sell directly, but he will still be receiving payment for orders and sales. If selling direct, the following approach will turn up simple sales and cash receipts summaries:

Cash Receipts	— cash sales — collections on accounts — miscellaneous
Cash on Hand	— money in the register — cheques — petty cash slips
Total Sales	— total cash sales — total charge sales

For all monies disbursed, the best method is to pay by cheque. This allows for details to be recorded in the cheque book showing date, amount, payee and purpose. Every cheque should have supporting documents, such as an invoice, bill statement or payroll summary. Invoices should be marked paid, date paid and cheque number. These documents should be put in a bills paid file.

Check all invoices and bill statements for items received versus those ordered, for terms, cash discounts and prices. Be sure to take advantage of cash discounts and to use your suppliers' credit as you are usually allowed 30 days from date of statement until the funds are due. This is free credit and will allow you to use these funds for operating needs.

ACCOUNTS RECEIVABLE

When granting credit, care is necessary as collection of these accounts entails some costs such as bad debts, setting up the bookkeeping, billing, credit investigation and collections.

If you decide to institute a credit plan, a firm policy should be established as to who is allowed to purchase on credit, what the terms are and how past due accounts are to be handled (by a collection agency, or through Small Claims Court). Always remember that slow paying accounts tie up your working capital. Firms or individuals that owe your company money may look elsewhere to buy rather than face demand for payment on their account. Therefore, granting credit may prevent or diminish further sales to the slow-paying customer and may lead to bad debt losses.

No matter how careful you are in extending credit, sooner or later bad debt losses will occur. If your credit granting policy is too strict, however, it may lead to a loss of potential sales.

Bad debt ratios are calculated in the following manner:

$$\frac{\text{Bad Debts}}{\text{Total Credit Sales}} = \text{Bad Debt Percentage}$$

This ratio should not exceed 2%, and slow accounts need to be immediately dealt with when overdue. The older a receivable becomes, the more difficult it is to collect. Eventually, after a certain point, it will have to be written off as uncollectable.

A simple system of aging accounts receivable should be devised that lists each account and its position. The aging process should be undertaken at least three or four times a year and more often for a business with a large volume of accounts. An example of a written accounts receivable aging system follows:

Aging Accounts Receivable

Current	Total	Current	30-60 Days	60-90 Days	3-6 Mos.	6-12 Mos.	Over 1 Yr.
Boisvert Services Ltd.	600		600				
Cadence Chemicals	350				350		
Davidson Welding	200			100	100		
Dziaba Die & Tool	1,000	800	200				
Rutherford Construction	500	500					
Slater Drilling	900	700	100	50	50		
T & H Products	810	810					
Total	4,360	2,810	900	150	500		
Percent	100%	64.4%	20.7%	3.4%	11.5%		

Note: the names and amounts shown above are not intended to represent any existing firms.

Good management has always been determined by the ability of a company to see an opportunity or pitfall and then take the required action. Historical financial data is useful, but company policy, as well as future operating statements, have to be accurate. Thus a regular review of the entire operation of the company is a necessity.

The following list of areas may be useful:

Accounting — As the profitability of any plant is based on cost control, the accounting system must show all costs at current prices.

Budgeting — Plan your operating requirements and sales. This will allow for more control over costs and production, and will help eliminate unexpected expenses and ensure funds are available to meet your obligations as they arise.

Inventory Control — All inventory is cash tied up and not available for current needs. Ensure inventories are reasonable and accounted for.

Insurance — Review your needs and present requirements.

Marketing — Review present markets and investigate new domestic and foreign markets. Continually appraise customer needs and product advantages. Study industry trends.

Plant and Equipment — Layout efficiency and service requirements versus new machinery.

Purchasing — Is the purchasing policy current with regard to volume discounts, etc.?

Innovations — New equipment cost/benefit.

Taxes and Other Legal Obligations — Are all regulations being met?

GOVERNMENT ASSISTANCE

The Department of Economic Development's Industry Development Branch helps enhance the performance of manufacturing and construction industries.

The Manufacturing and Construction Section covers:

- Metal fabricating, machinery, transportation equipment
- Plastics fabricating, textiles and clothing, product design and development
- Electrical/electronic industries, data processing
- Engineering consultants, contractors, construction materials

Responsibilities of the Manufacturing and Construction Section are:

- To encourage maximum use of Alberta content in engineering, construction and purchases of manufactured products for major Alberta and northern projects;
- To encourage the expansion and diversification of Alberta manufacturing companies and their products;
- To encourage location in Alberta of plants to manufacture equipment and components not presently manufactured here;
- To encourage the use of industrial design by Alberta manufacturers;
- To provide technical assistance to the manufacturing sector, including advice on licensing agreements and joint ventures, etc.

The Department of Tourism and Small Business, in addition to preparing this series of business guides, assists owner-managers and entrepreneurs with their financial and general business planning, whether starting up new businesses or expanding existing operations.

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